
From: MORASH, MELANIE
Sent: Monday, August 12, 2019 1:36 PM
To: Cashwell, James M CERG
Cc: Jennings, Lynne; DiLorenzo, James; Brandon, William; Jeffrey Brunelle; Jennifer Lambert; Ng, ManChak; Pechulis, Kevin; Kilborn, John
Subject: EPA Comments - Olin's July 25, 2019 Proposed Stream Gauge Locations
Attachments: 08-06-2019_EPA Tech Memo_Olin Stream Gauge Proposal Review.pdf

Good afternoon, James,

As follow-up to Lynne's e-mail below, please find attached a technical memo prepared by Bill Brandon on your proposed stream gauge locations, which you originally transmitted to EPA via e-mail on July 25, 2019.

We appreciate your consideration of this set of technical comments, which request additional actions to support a more robust assessment and monitoring of groundwater impacts to surface water at the Olin Chemical Superfund Site (Site). Specifically, additional work is needed, including revising maps of all pertinent features and the existing surface water/groundwater network to monitor these features.

A response to this set of comments is requested within **ten** calendar days, or by **Thursday, August 22nd**.

We are also open to having a focused discussion with you on this subject after you have had an opportunity to review these comments.

Sincerely,

Melanie

Melanie Morash
Superfund Project Manager
EPA Region 1 – New England
5 Post Office Square
Boston, MA 02109
morash.melanie@epa.gov
(617) 918-1292

From: Jennings, Lynne <Jennings.Lynne@epa.gov>
Sent: Wednesday, July 31, 2019 1:16 PM
To: Cashwell, James M CERG <JMCashwell@olin.com>
Cc: MORASH, MELANIE <morash.melanie@epa.gov>; DiLorenzo, James <dilorenzo.jim@epa.gov>; Brandon, William <Brandon.Bill@epa.gov>; Jeffrey Brunelle <jbrunelle@nobis-group.com>; Jennifer Lambert <jlambert@nobiseng.com>
Subject: RE: Status

Hello James,

Attached is a memo from Bill Brandon with comments on the seismic refraction information. Nobis is also reviewing but has not completed their review. I don't have a deadline for their review but I am guessing that any comments they may have can likely be addressed in next phase of work.

Also attached is Nobis memo on the surface water stream gages. Bill Brandon has not had a chance to complete his review on this and has indicated that he will complete by Thursday, we will forward them to you on Thursday.

Thanks
Lynne

From: Cashwell, James M CERG <JMCashwell@olin.com>
Sent: Wednesday, July 31, 2019 11:31 AM
To: Jennings, Lynne <Jennings.Lynne@epa.gov>
Subject: Status

Lynne, any update on the status of the seismic and surface water memos?

James Cashwell
Director, Environmental Remediation
Olin Corporation

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MEMORANDUM

To: Melanie Morash, RPM

Date: August 6, 2019

From: W. Brandon, Hydrogeologist

Cc: Lynne Jennings, Jim DiLorenzo, Olin Case Team

Subject: Review of recent stream gauging proposals, OCSS, Wilmington, Mass

Introduction:

In a recent technical meeting (6/25/19) and follow-up telecons, the issue of data density of surface water monitoring necessary to support assessment of groundwater-surface water interactions at OCSS was discussed in relation to the *Data Gaps Work Plan*, which is currently being developed. In response to these discussions, Olin provided a memorandum which describes new staff gauge and/or piezometer locations proposed for various areas of the large and complex site. The proposal was forwarded in the body of an email sent from Libby Bowen (Wood.) on July 25 to EPA, (Lynne Jennings, Melanie Morash, Jim DiLorenzo, et. al.) The proposal included two maps showing proposed stream gauge locations at three general areas across the site:

- Maple Meadow Brook
- Area North of Olin (GW-413 Area), and
- South Ditch

In response to Olin's proposal, EPA's contractor (Nobis) provided a memorandum dated July 29, 2019 which generally endorsed Olin's proposals and recommended an additional location in fringing wetlands east of the Maple Meadow brook main channel.

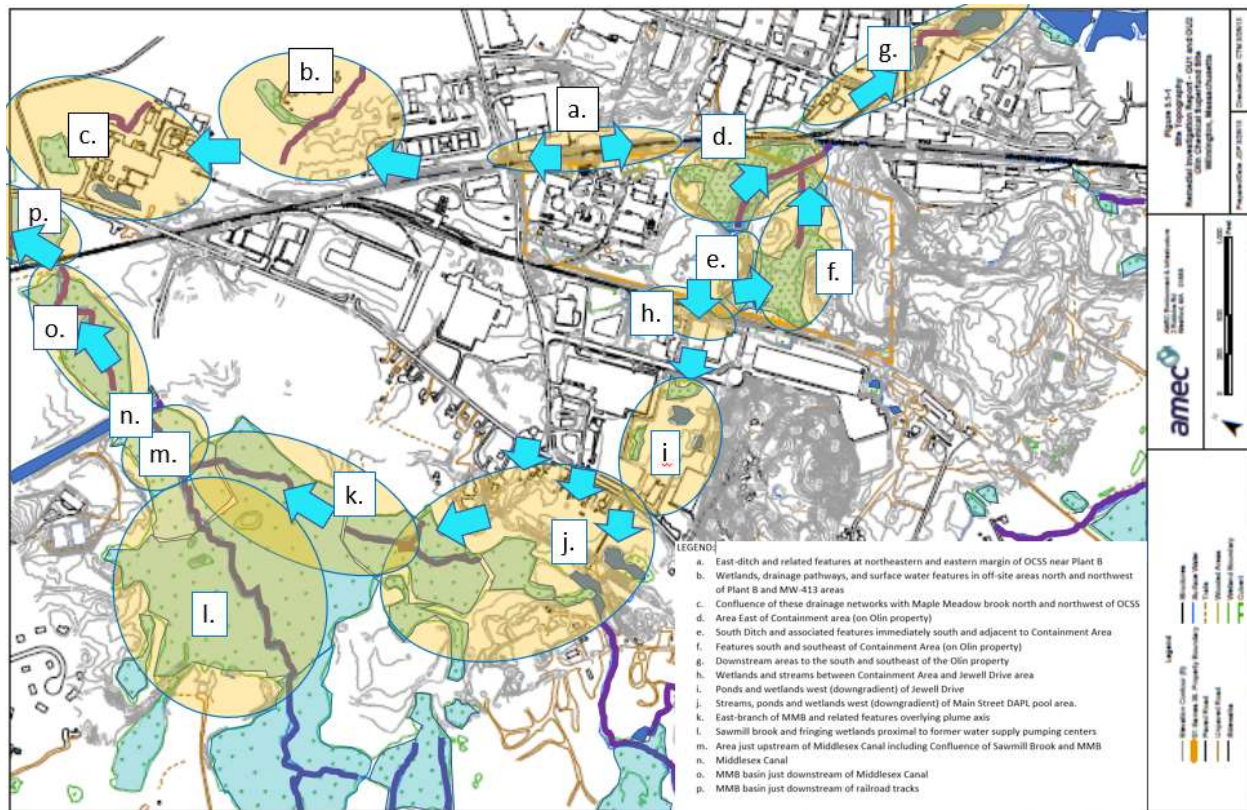
While EPA generally endorses both Olin's and Nobis' proposed locations, a more comprehensive review, below, suggests additional actions are needed, moving forward, to support a more robust assessment and monitoring of groundwater impacts to surface water at OCSS.

General Comments:

1. *Identification and cataloguing of pertinent surface water features:* In attempting to evaluate the adequacy of the monitoring network with respect to surface water elevations and groundwater/surface water interactions, it is clear that an updated map(s) of surface water bodies and related features at the site need to be prepared, at a variety of scales of interest. Features of interest include streams, ponds, canals, weirs, stormwater retention basins, impoundments, including areas of fringing wetlands, and other mappable distinct wetland

features. It may be necessary to perform field mapping and/or field verification of features given the evolution of the site shown on maps and photos of different dates as well as the changes in water level due to cessation of large-scale water withdrawals affecting large areas of the site. For all pertinent features which do not already have a unique designator and precise boundaries, unique alpha-numeric identifiers need to be created to facilitate consistency and accuracy moving forward.

2. *Watershed sub-areas of interest*: In addition to the site-wide scale, it is necessary to provide more detailed representations of surface water and wetland features at many sub-areas of the site. For example, Olin's July 25 proposal discusses Maple Meadow Brook, Area North of Olin (GW-413 Area), and South Ditch at a greater level of detail. It may be advisable to reevaluate potential groundwater/surface-water impacts at other sub-areas of the site, as follows, and highlighted on the figure, below:
 - a. East-ditch and related features at northeastern and eastern margin of OCSS near Plant B
 - b. Wetlands, drainage pathways, and surface water features in off-site areas north and northwest of Plant B and MW-413 areas
 - c. Confluence of these drainage networks with Maple Meadow brook north and northwest of OCSS
 - d. Area East of Containment area (on Olin property)
 - e. South Ditch and associated features immediately south and adjacent to Containment Area
 - f. Features south and southeast of Containment Area (on Olin property)
 - g. Downstream areas to the south and southeast of the Olin property
 - h. Wetlands and streams between Containment Area and Jewell Drive area
 - i. Ponds and wetlands west (downgradient) of Jewell Drive
 - j. Streams, ponds and wetlands west (downgradient) of Main Street DAPL pool area.
 - k. East-branch of MMB and related features overlying plume axis
 - l. Sawmill brook and fringing wetlands proximal to former water supply pumping centers
 - m. Area just upstream of Middlesex Canal including Confluence of Sawmill Brook and MMB
 - n. Middlesex Canal
 - o. MMB basin just downstream of Middlesex Canal
 - p. MMB basin just downstream of railroad tracks



3. *Inventory of surface water monitoring components*: A more rigorous evaluation of groundwater/surface water interactions, including an assessment of additional monitoring needs in the sub-areas of the site listed above will require additional efforts. A comprehensive inventory of all existing surface water gauging stations is necessary step. The inventory needs to include a review of existing information as well as field-checking presence and condition of staff gauges believed to exist at the site, including repair, reinstallation, and resurveying if necessary. In addition to staff gauges, the compilation should include piezometers and monitoring wells installed in shallow overburden deposits within or at the margins of surface water features of interest, including streams, ponds, canals, impoundments, including fringing wetlands, and other mappable distinct wetland features. The inventory of surface water gauging stations and co-located/associated well points should be compiled and presented in form of a table and associated map(s). The following information should be included in the table:
- Type of feature (staff gauge, piezometer, monitoring well, other)
 - Latitude/longitude
 - Elevation of measuring point
 - Elevation of ground or wetland surface
 - Depth/elevation of screened interval (if applicable)
 - ID and screened interval (geologic zone and depth, elevation) of monitoring wells co-located with surface water monitoring stations.

- a. Type of feature (staff gauge, piezometer, monitoring well, other)
- b. Latitude/longitude
- c. Elevation of measuring point
- d. Elevation of ground or wetland surface
- e. Depth/elevation of screened interval (if applicable)
- f. ID and screened interval (geologic zone and depth, elevation) of monitoring wells co-located with surface water monitoring stations.

4. In addition to assessing potential groundwater/surface water interactions, increased surface water monitoring density is needed to provide constraints on surface water levels in many areas across the vast site. Such information is needed to constrain groundwater flow analysis, modeling, and other tasks, should they be necessary now or at some point in the future. Some of the site subareas discussed above appear to have adequate surface water data density for these purposes. However, other subareas of the site seem to be devoid of any surface water monitoring capability. Once the, a) identification and cataloguing of pertinent surface water features, and b) inventory of surface water monitoring components are available for review, EPA proposes a technical meeting with Olin to assess the potential need for additional surface water and groundwater monitoring stations to augment the existing network in select areas of the site.

Specific Comments:

1. Olin indicated that, "Proposed stream gauges will consist of USGS-style staff gauges graduated at 0.02 feet. The locations of the proposed staff gauges are shown on the attached figures. Once installed, the elevation of each gauges will be surveyed to allow conversion of stage measurements to water level elevations." We concur, but consideration should be given to also installing shallow hand driven piezometers collocated with staff gauges, particularly in locations where no shallow overburden well control exists to assess gradients between surface water and underlying groundwater.
2. Maple Meadow Brook (MMB): Olin's plan for monitoring in the MMB area is strengthened by the careful selection of locations which afford comparison of surface water elevations with multiple zones of underlying groundwater. However, as stated above, it is EPA's belief that additional data density is needed in the MMB. At a minimum monitoring stations are needed in each distinct "sub-basin", some of which are devoid of monitoring and are not currently proposed for monitoring. The size of the area, as well as the hydrogeologic complexity of the area argue for a greater data density in the MMB. Further discussions are needed. Please see general comments above.
3. Please clarify the hydraulic relationships between the former Middlesex Canal and MMB and what data/information informs this. Are the two features hydraulically connected? If so, to what extent?
4. A better understanding of the lateral and vertical extent of peat deposits underlying the MMB as discussed by Olin during a recent meeting would help inform additional surface water and groundwater monitoring needs. This represents a data gap which needs to be addressed.
5. Maps from a variety of scales and dates consistently show small but distinct surface water bodies (i.e., ponds) hydraulically downgradient of both the Jewell Drive (off-property) DAPL area as well as downgradient of the Main Street DAPL pool area. These features are shown on the attached figure in the "i." and "j." subareas. The proximity of these features to known shallow pools of DAPL strongly suggests the need for additional monitoring in these features.
6. Similarly, several distinct ponds and associated wetlands exist in offsite areas to the southeast of the site, where no monitoring appears to exist. It may be necessary to augment characterization of groundwater/surface water impacts and associated monitoring in these offsite areas. See general comments, above.

7. The position and interrelationship of wetlands, drainage pathways, and surface water features in off-site areas north and northwest of Plant B and MW-413 area, including the confluence of these drainage networks with Maple Meadow brook north are not clear. A more highly resolved map at an appropriate scale should be constructed for this area once all pertinent features have been identified, named and catalogued. See general comments, above.